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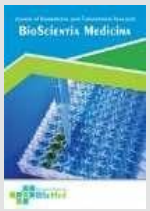

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The Effect of Birth Ball Exercise on the Progress of Labor During the First Active Phase at PONED (Basic Emergence Neonatal Obstetric Services) UPTD DTP Pedes Health Center, Karawang Regency, Indonesia

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A B S T R A C T

Background: Prolonged parturition or labor that lasts longer than usual can increase the risk of complications and the potential for maternal death. The birth ball exercise, also known as the birth ball exercise or the pregnancy ball exercise, can help harness the influence of gravity to induce labor progress. This study aimed to assess the effect of birth ball exercises on the progress of labor during the first active phase at the PONED UPTD DTP Pedes Health Center, Karawang Regency, Indonesia. **Methods:** This study is an experimental study, where as many as 30 research subjects participated in this study. Analysis of the progress of labor was carried out using SPSS software in a univariate and bivariate. **Results:** The results of the study showed that the birth ball exercise had an effect on the progress of labor with a p-value = 0.002 (p <0.05). **Conclusion:** There is an influence of birth ball exercises on the progress of labor at PONED UPTD DTP Pedes Health Center, Karawang Regency, Indonesia.

1. Introduction

Indonesia is a country with a relatively high maternal mortality rate in Southeast Asia. The maternal mortality rate in Indonesia has reached 126 per 100,000 live births, which is still quite high from the 2030 SDGs (sustainable development goals) target. Controlling maternal mortality has a very high urgency because every maternal death is a tragedy that can be prevented. Every woman has the right to life and good health. Maternal death is a violation of human rights because it can be prevented by providing adequate care and access to health services. Maternal death has a far-reaching impact on families and communities. Mothers are the backbone of the family and are often the main source of care and education for children. Losing a mother can have serious social and economic consequences for families and society as a whole. Controlling maternal mortality is an important part of sustainable development. The presence of a healthy and strong mother contributes to economic growth, good education, and increased social welfare. Maternal mortality and child mortality rates are closely related. Efforts to reduce maternal mortality can also have a positive impact on reducing child mortality because adequate prenatal and post-natal care contributes to the health of mothers and babies.[1-5]

Prolonged parturition or labor that lasts longer than usual can increase the risk of complications and

the potential for maternal death. Prolonged labor can cause excessive bleeding. If not treated properly, heavy bleeding can cause hypovolemic shock (significant lack of blood volume) and threaten the mother's life. Labor that lasts a long time can increase the risk of infection in the reproductive tract and uterine cavity. Infections that are not treated or treated properly can lead to sepsis, which is a serious condition and can be life-threatening to the mother. Prolonged parturition can cause the mother to become very tired and dehydrated. Extreme fatigue and dehydration can cause a drop in blood pressure, electrolyte abnormalities, and other life-threatening complications for the mother.[6-8]

Gravity plays an important role in the progress of labor. Gravity helps in the alignment of the baby with the optimal birth canal. When the mother stands or walks during labor, gravity helps the baby to slide further down the pelvis and position himself properly to pass through the birth canal. Gravity helps push the baby's head down further toward the cervix. When the mother is standing or walking, gravity helps the baby's head press against the cervix, speeding up the dilation of the cervix. Gravity can increase the force of uterine contractions. When the mother is standing or walking, the effect of gravity helps increase the strength and effectiveness of uterine contractions, speeding up the labor process. The birth ball exercise, also known as the birth ball exercise or the pregnancy ball exercise, can help harness the influence of gravity to induce labor progress. Using a birth ball allows pregnant women to sit or stand in a vertical position. In this position, gravity helps the baby to slide further into the pelvis and position himself properly to pass through the birth canal. The vertical position can also help speed up the dilation of the cervix. The birth ball allows pregnant women to make free hip movements. Hip movements such as rolling or curling on a ball can help position the baby properly and stimulate effective uterine contractions. Sitting or curling on the birth ball can help relax the pelvic muscles, including the pelvic muscles holding the baby. This can help expedite the labor process and accelerate the progress of labor.[9-11] This study aimed to assess the effect of birth ball exercises on the progress of labor during the first active phase at the PONED UPTD DTP Pedes Health Center, Karawang Regency, Indonesia.

2. Methods

This study is an experimental study with a pre and post-test approach with a control group. This study uses primary data obtained from PONED UPTD DTP Pedes Health Center, Karawang Regency, Indonesia. A total of 30 research subjects participated in this study, where the research subjects met the inclusion criteria. The inclusion criteria in this study were women who gave birth during the first active phase at the PONED UPTD DTP Pedes Health Center, Karawang Regency, Indonesia, and were willing to participate in this study, which was marked by signing informed consent. The research subjects were grouped into two groups, namely the intervention group and the control group. This study was approved by the medical and health research ethics committee.

The intervention group was the research subject who received the birth ball exercise intervention. At the same time, the control group is a research subject that does not get birth ball exercise intervention. To assess the progress of labor, the partograph instrument was assessed using the birth ball influence on childbirth fluency at 1. This study also assessed sociodemographic aspects and the progress of labor. Data analysis was carried out using SPSS software version 25. Univariate analysis was performed to assess the frequency distribution of each data variable test. Bivariate analysis was performed to assess the effect of each test variable, with a p-value <0.05.

3. Results

Table 1 presents the characteristics of the research subjects. The majority of research subjects are aged 20-35 years. The majority of research subjects are primiparas and multiparas. The majority of research subjects have low education. Table 2 presents the relationship between the progress of labor and the birth ball exercise intervention. The results of the

study showed that the birth ball exercise had an effect on the progress of labor with a p-value = 0.002 (p <0.05).

4. Discussion

Birth ball exercises are claimed to help increase pelvic flexibility and help reduce pain during labor. It is also claimed to help increase the production of oxytocin, a hormone that helps induce labor. Birth ball exercises can help mothers prepare for an easier delivery process. In addition to increasing pelvic flexibility, birth ball exercises are also claimed to help strengthen the muscles involved in the birth process. This can help reduce the risk of injury to the mother and help improve the health of both mother and baby during labor. Also, birth ball exercises are claimed to help mothers find the most comfortable delivery position and increase blood flow to the uterus and pelvis to help make labor easier. Birth ball exercises can help mothers relax and prepare their bodies for labor by helping reduce pain. The muscles involved in the birth process, such as the pelvic floor muscles, back and thigh muscles, can be prepared to support delivery. By strengthening these muscles, the mother can experience less injury during labor and have a more comfortable birth experience. In addition, by using birthing balls, mothers can increase their body's flexibility by moving regularly. This movement can help expand the diameter of the pelvis and prepare the back muscles to reduce pressure on the knees and hips during delivery.[12-14]

Table 1. Characteristics of research subjects.

No	**Variable**	**Control**		**Intervention**		**Total**	
		N	**%**	N	%	N	%
Age							
1	20 – 35 years	9	60,0	10	66,7	19	63,3
2	< 20 & > 35 years	6	40,0	5	33,3	11	36,7
Parity							
1	Primipara	5	33,3	8	53,3	13	43,3
2	Multipara	9	60,0	5	33,4	14	46,7
3	Grande multi	1	6,7	2	13,3	3	10,0
Education							
1	Low	11	73,3	10	66,7	21	70,0
2	High	4	26,7	5	33,3	9	30,0
Occupation							
1	Not working	11	73,3	10	66,7	21	70,0
2	Working	4	26,7	5	33,3	9	30,0

Table 2. The relationship between the birth ball exercise intervention and the progress of labor.

Labor progress	**Control**		**Intervention**		**p-value***
	N	**%**	**N**	**%**	
Progress	4	26,7	9	60,0	0,002
No progress	11	73,3	6	40,0	

*Chi-square test, p<0,05.

By doing these movements, the mother can reduce pain during labor. Light movements will help the mother adapt to the rhythm of pelvic flexibility and reduce the risk of complications during delivery. Therefore, ball birth exercises can help increase the flexibility of the mother's body and reduce pressure on the knees and hips, which can help reduce pain during childbirth. By doing these movements, the mother can control the strong pulling of the pelvic muscles that are usually felt during labor. These movements also help increase blood flow to the uterus and its surroundings, which helps reduce pressure on the uterus and reduce pain. At the same time, this movement can develop strong muscles that can help the mother to adapt to the flexible motion of the pelvis during childbirth. These movements can help the mother manage the pressure she feels and reduce her pain during childbirth. In addition, this movement also helps increase blood flow to the uterus and its surroundings, which makes it easier for the mother to adjust to the flexible motion of the pelvis during delivery. Thus, these movements can significantly assist the mother in planning and controlling the birth process.[15-17]

5. Conclusion

There is an influence of birth ball exercises on the progress of labor at PONED UPTD DTP Pedes Health Center, Karawang Regency, Indonesia.

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